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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,348	07/31/2003	Sarah Young	11150/76	3597

26646 7590 01/15/2008
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EXAMINER	
LIANG, REGINA	

ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
01/15/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/632,348	YOUNG, SARAH	
	Examiner	Art Unit	
	Regina Liang	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 6-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 6-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The previous Office Action is withdrawn. Claims 1, 6-25 are pending in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 7, 8, 10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification does not provide any description as to ***how*** the actuator layer is deformable as a function of an electromagnetic field or optical signal, e.g., light as claimed (claims 7, 8, 10). Therefore, applicant's disclosure is nonenabling as to how an optical signal, or an electromagnetic field will cause the deformable geometry as claimed.

Claim Rejections - 35 USC § 103

5. Claims 1, 6-13, 15-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Franzen (WO 02/27645 with machine translation) and Wingert et al ("Hyper-Redundant Robot

Manipulators Actuated by Optimized Binary Dielectric Polymers", hereinafter Wingert) in view of Palalau (US PAT. NO. 6,373,472).

As to claims 1, 20-22, Fig. 1 of Franzen discloses a touch-sensitive display with tactile feedback, comprising a display (electronic paper S2); and an actuator layer (transparent flexible sensor mat S1) arranged on the display and including an operating surface geometry deformable as a function of a control signal generated by at least one of a computation device (control unit µp, see the abstract and paragraph 5-6 on page 4 of Result Pages of the Description).

Franzen does not disclose the actuator including a material having a reversibly and controllably changeable volume. However, it is well known in the art that actuator including a material having a reversibly and controllably changeable volume (see Wingert's dielectric polymer actuator) so as to "achieve improved performance by incorporating an elastic passive element to maintain uniform force-displacement characteristic and bi-stable action" (lines 6-9 in ABSTRACT of Wingert). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the actuator of Franzen to have the material as taught by Wingert so as to "achieve improved performance by incorporating an elastic passive element to maintain uniform force-displacement characteristic and bi-stable action" (lines 6-9 in ABSTRACT of Wingert).

Franzen as modified by Wingert does not disclose the display is configured to display information relevant to operation of a motor vehicle. However, it is well known in the art that touch-sensitive display is widely used in different environments such as in motor vehicles to provide user friendly input interface which can be customized and personalize for the driver (e.g. Palalau col. 2 lines 5-13). For example, Figs. 1, 2, 9 of Palalau disclose a display device in a

steering wheel of a motor vehicle, comprising a touch screen display (28, 32, 36) configured to display information relevant to operation of a motor vehicle. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the touch-sensitive display of Franzen as modified by Wingert to be used in the motor vehicle for providing information relevant to operation of the motor vehicle as taught by Palalau since this "provides a "hands-on", "eyes-front" driver control interface system which minimizes the time and distance that the driver's attention is diverted from the road and the time and distance that the driver's hands are diverted from the steering wheel while operating various systems in the vehicle" via a customized and personalized user interface (col. 1, lines 24-40 of Palalau).

As to claim 6, Franzen teaches the actuator layer is transparent (transparent flexible sensor mat S1, see paragraph 6 on page 4 of Result pages).

As to claims 7 and 8, Franzen teaches the control signal includes an optical signal or light (see paragraph 8 on page 5, and paragraph 1 on page 6).

As to claims 9, 10. Franzen teaches the control signal includes an electrical field or an electromagnetic field (paragraph 1-3 on page 4]).

As to claim 11, Franzen teaches the actuator layer is statically deformable at least for duration of the control signal (paragraph 5 on page 4).

As to claims 12, 13, Franzen teaches the display is configured to receive entry of user input or an area of the actuator layer is configured to receive the entry of the user input (virtual keypad).

As to claim 15, Franzen teaches the actuator layer is controllable by haptic feedback (tactile feedback).

As to claim 16, Franzen teaches the sensor mat detecting a touch or a press at a point of the first layer and the control unit generates the control signal to deform the actuator, it is inherent that the actuator is deformable by pressure with a force that exceeds a limiting value otherwise the sensor mat can not detect a touch or a press caused by the user.

As to claims 17 and18, Franzen teaches a computation device (control unit μp) configured to deform the actuator layer in accordance with the control signal at a point of contact of the actuator layer touched by the user or at the point of contact only in response to an input via the display by the user by touch at the point of contact.

As to claim 19, Franzen teaches the actuator layer is configured to produce an operating element.

As to claim 23, Franzen teaches the operating surface (sensor mat layer S1) geometry is deformable in response to the control signal.

As to claim 24, Franzen teaches a computation device (control unit μp) configured to generate the control signal, the operative surface geometry deformable in response to the control signal generated by the computation device.

As to claim 25, Franzen teaches the operating surface geometry is deformable is response to an electronic control signal.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Franzen, Wingert and Palalau applied to claim 1 above, and further in view of Mulligan (US 2004/0017362).

Franzen as modified by Wingert and Palalau does not disclose the actuator layer includes a sol-gel. However, Mulligan teaches touch sensor device comprising a sol-gel ([0029]). Thus it

would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the actuator layer of Franzen as modified by Wingert and Palalau to include a sol-gel as taught by Mulligan so as to protect the sensor bars of the touch sensor from damage due to a touch.

Response to Arguments

7. Applicant's arguments with respect to claim1, 6-25 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's remarks regarding claims 7, 8, 10 are not persuasive since applicant's disclosure is nonenabling as to how an optical signal, light, or an electromagnetic field will cause the deformable geometry as claimed. The specification is nonenabling since it fails to disclose how are these signals control, applied, etc. as to cause the deformation of the actuator. Applicant cited the section on page 6, lines 3-33 to provide support for claims 7, 8 and 10. However, page 6, lines 3-33 of the specification merely discloses several exemplary actuator layers using elastomers or dielectric polymers materials. In the cited articles, those materials are deformable when in a control process using an electrical field only. However, these articles do not disclose those materials are deformable when in a control process using optical signal, light or electromagnetic field. Again, applicant is relying on others to fill in the gaps as to how this is done, and as such undue experimentation is required of a personal of ordinary skill in the art in order to make and use the invention. Therefore, the specification is nonenabling for claims 7, 8, 10 and failed to show that applicant had possession of the claimed subject matter; and applicant's remarks are not persuasive.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (571) 272-7693. The examiner can normally be reached on Monday-Friday from 8AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Regina Liang
Primary Examiner
Art Unit 2674

1/11/08